



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,725	01/07/2005	Eric Fache	RN02095	9369

7590 03/14/2007  
Jean-Louis Seugnet  
Rhodia Inc  
Intellectual Property Dept  
259 Prospect Plains Road CN-7500  
Cranbury, NJ 08512-7500

EXAMINER
----------

KEYS, ROSALYND ANN

ART UNIT	PAPER NUMBER
----------	--------------

1621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/520,725	FACHE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rosalynd Keys	1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 28-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____                                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                           |

Art Unit: 1621

**DETAILED ACTION**

***Status of Claims***

1. Claims 28-54 are pending.  
Claims 1-27 are cancelled.  
Claims 28-54 are rejected.

***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Objections***

3. Claim 29 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. There is no variation in the steps disclosed in claim 29. The steps are the same as those already disclosed in claim 28.
4. Claim 45 is objected to because of the following informalities: the word "from" or some equivalent thereof should be inserted between the words "result" and "the" on line 2 of the claim in order for the claim to be grammatically correct. Appropriate correction is required.
5. Claim 54 is objected to because of the following informalities: the word "than" or some equivalent thereof should be inserted between the word "lower" and the number "100" on line 2 of the claim in order for the claim to be grammatically correct. . Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1621

7. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 52 is indefinite because it depends from cancelled claim 24.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 54 recites the broad recitation wherein it has a sulfur content, and the claim also recites preferably lower than 200 ppm and still lower more preferably lower than 100 ppm which are the narrower statements of the range/limitation.

#### **Claim Rejections - 35 USC § 103**

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1621

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 28-43 and 48-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 2,196,580).

Smith et al. teach preparation of a 2-chloro-4-nitro-phenol comprising the following steps; hydrolysis using an alkali, such as sodium hydroxide, at a temperature of between 125° and 200°; formation of the salt which is crystallized on cooling the reaction mixture to room temperature or thereabout; partial evaporation in order to obtain a good recovery of the crystalline salt; separation of the crystalline salt from the mother liquor; washing of the crystalline salt; acidification of the salt to liberate the 2-chloro-4-nitrophenol; separation of the 2-chloro-4-nitrophenol by filtration; water washing of the 2-chloro-4-nitrophenol; purification of the 2-chloro-4-nitrophenol, when necessary by crystallization; drying of the 2-chloro-4-nitrophenol; extracting the remaining liquor to remove any unreacted dichloro-nitrobenzene therefrom; acidifying the remaining liquor with a mineral acid, such as sulfuric or hydrochloric acid to liberate the 2-chloro-4-nitrophenol; isolating and purifying the 2-chloro-4-nitrophenol in a conventional manner, e.g. by crystallization or steam distillation, etc. (see entire disclosure, in particular column 1, line 38 to column 4, line 5).

Smith et al. differ from the instant claims in that concentration step is a required step in the instant claims, but is optional in the process of Smith et al. However, the concentration step is suggested in Smith et al. (see column 2, lines 17-20) and the skilled artisan would have been motivated to perform this step, since Smith et al. teach that this step would allow one to obtain good recovery of the crystalline salt.

Smith et al. also differ from the instant claims in that the steps are not always performed in the exact same order as the claimed steps and the reaction conditions, i.e., the concentrations and

Art Unit: 1621

temperatures utilized, vary. Smith et al. do suggest that the steps and the reaction conditions may be modified (see column 3, line 48 to column 4, line 5). One having ordinary skill in the art would have been motivated to modify the steps and reaction conditions of the Smith et al. process in order to obtain an alternative method for obtaining the desired 2-chloro-4-nitrophenol as a purified product. Further, changes in temperature, concentrations, or other process conditions of an old process does not impart patentability unless the recited ranges are critical, i.e., they produce a new and unexpected result. *In re Aller et al.*, (CCPA 1955) 220 F2d 454, 105 USPQ 233.

Smith et al. further differ from the instant claims in the Smith et al. do not disclose the nitrohalobenzene, halogen and sulfur content of their purified nitrophenol. However, the skilled artisan would be motivated to obtain the nitrophenol in as pure a form as possible, since the nitrophenol product of Smith is useful as a chemical agent from which a wide variety of other products may be prepared (see column 1, lines 26-37). Further, when claiming a purer form of a known compound, it must be demonstrated that the purified material possess properties and utilities not possessed by the unpurified material. Ex parte Reed, 135 U.S.P.Q. 34, 36 (P.O.B.A. 1961), on reconsideration, Ex parte Reed, 135 U.S.P.Q. 105 (P.O.B.A. 1961).

13. Claims 28-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Georgiou (US 3,624,164) in view of Bockrath (US 4,215,227), Payne et al. (GB 1,165,637) and Muller et al. (US 4,310,711).

Georgiou teach preparation of alkali metal salts of nitrophenols by hydrolysis of chloronitrobenzene using a caustic, such as sodium or potassium hydroxide, at a temperature range of 180° to 250°C at autogenous pressure (see entire disclosure, in particular column 1, line 61 to column 4, line 24). The process of Georgiou also includes a concentration step (see column 3, lines 8-11); crystallization step (see column 3, lines 12-15) and separation steps (see column 3, lines 13-20). Georgiou also teaches that the free phenol may be obtained by cooling the reaction mixture, acidifying with HCl or H<sub>2</sub>SO<sub>4</sub> and separating either the phenol phase from the aqueous phase or separating the phenol as a solid from the reaction mixture (see column 3, lines 62-69).

Georgiou differ from the instant claims in that the steps are not always performed in the exact same order as the claimed steps and the reaction conditions, i.e., the concentrations and temperatures utilized, vary. Georgiou does suggest that the steps and the reaction conditions may be modified (see

Art Unit: 1621

column 2, line 72 to column 3, line 7). One having ordinary skill in the art would have been motivated to modify the steps and reaction conditions of the Georgiou process in order to obtain an alternative method for obtaining the desired nitrophenol salt and/or free nitrophenol. Further, changes in temperature, concentrations, or other process conditions of an old process does not impart patentability unless the recited ranges are critical, i.e., they produce a new and unexpected result. *In re Aller et al.*, (CCPA 1955) 220 F2d 454, 105 USPQ 233.

Georgiou further differ from the instant claims in that Georgiou do not teach recycling steps as disclosed in claims 44-47.

Bockrath teaches a similar method as Georgiou, which includes recycling steps (see entire disclosure, in particular column 1, line 59 to column 5, line 2). The recycled streams include the residual aqueous solutions containing alkali metal salts from the separation and washing steps (see column 2, lines 9-44).

One having ordinary skill in the art at the time the invention was made would have found it obvious to perform the recycle steps of Bockrath in the process of Georgiou because Bockrath teaches that his recycle steps may be used in the process of Georgiou (see column 2, lines 28-40). The skilled artisan would have been further motivated to perform the recycle steps of Bockrath in the process of Georgiou because Bockrath teaches that the use of said steps allows one to recover the salts that are present in the residual aqueous solutions in the form of high quality product (see column 2, lines 9-17).

Georgiou teaches separation of the phases or separation of the phenol, but fails to teach that the separation occurs via filtration or centrifugation nor does Georgiou teach further processing of these phases.

Payne et al. teach a method for the production of nitrophenols, wherein the crystallized product is separated via filtration or centrifugation (see entire disclosure, in particular page 1, line 64 to page 2, line 18).

One having ordinary skill in the art at the time the invention was made would have found it obvious to separate the products of Georgiou by any known means of separation including those taught by Payne et al. The skilled artisan would have been further motivated to perform either filtration or centrifugation since they are simple and very effective means of separating the salt from the reaction mixture.

Art Unit: 1621

Muller et al. teach a method of preparing 5-chloro-2-nitrophenol which is similar to claimed method and includes a step wherein the oil phase is separated, washed neutral with water and distilled under reduced pressure and the aqueous phase is worked up known manner (see entire disclosure, in particular column 2, line 7 to column 3, line 5).

One having ordinary skill in the art at the time the invention was made would have found it obvious to separate and purify the products of Georgiou by any known means of separation and purification including those taught by Muller et al. The skilled artisan would have been further motivated to perform the separation and purification steps of Muller et al. as an alternative means of obtaining the nitrophenol product in a purified form.

Georgiou further differs from the instant claims in the Georgiou does not disclose the nitrohalobenzene, halogen and sulfur content of his purified p-nitrophenol. However, the skilled artisan would be motivated to obtain the p-nitrophenol in as pure a form as possible, since the reaction by-products must be removed before the p-nitrophenol product of Georgiou is useful as an intermediate (see column 1, lines 51-56). Further, when claiming a purer form of a known compound, it must be demonstrated that the purified material possess properties and utilities not possessed by the unpurified material. Ex parte Reed, 135 U.S.P.Q. 34, 36 (P.O.B.A. 1961), on reconsideration, Ex parte Reed, 135 U.S.P.Q. 105 (P.O.B.A. 1961).

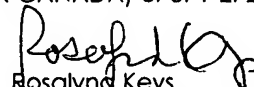
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M, W & F 5:30-7:30 am & 1-5 pm; T & Th 5:30 am-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 1621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Rosalyn Keys  
Primary Examiner  
Art Unit 1621

March 7, 2007